

IN THE CLAIMS:

The following is a current listing of claims and will replace all prior versions and listings of claims in the application. Please amend the claims as follows:

12. (New) A method, comprising:

receiving an input message transmitted using a source communication protocol, wherein the input message has a source data format;

generating an output message from the received input message, wherein the output message has a destination data format and is to be transmitted using a destination communication protocol;

wherein said generating includes using a multi-stage, multi-dimensional finite state machine to:

convert the source communication protocol of the input message to the destination communication protocol of the output message; and

convert the source data format to the destination data format of the output message;

wherein inputs to various stages of the finite state machine include inputs indicative of the source data format, the source communication protocol, the destination data format, and the destination communication protocol.

13. (New) The method of claim 12, the finite state machine having a first stage and one or more additional stages, wherein each of the stages generates an output from two or more inputs to that stage using a multidimensional matrix, and wherein each of the one or more additional stages includes the previous stage's output as an input;

14. (New) The method of claim 12, further comprising determining, from the input message, the source communication protocol and source data format.

15. (New) The method of claim 12, wherein the inputs to various stages of the finite state machine further include one or more of the following inputs: 1) inputs indicative of a) the type of source application that originated the input message and b) the type of destination application to

which the output message is directed; 2) inputs indicative of a) the type of a first device from which the input message originated and b) the type of a second device to which the output message is directed; 3) input indicative of a current connection status between the first and second devices, and 4) input indicative of the current state of the finite state machine.

16. (New) The method of claim 12, wherein inputs to one or more stages of the finite state machine include one or more reserved inputs, the method further comprising using at least one of the reserved inputs to update the operation of the finite state machine.

17. (New) The method of claim 15, wherein inputs to one or more stages of the finite state machine include one or more reserved inputs, the method further comprising using at least one of the reserved inputs to update the operation of the finite state machine.

18. (New) The method of claim 12, wherein the one or more additional stages include a final stage having an output specifying 1) a current action to be taken in order to generate the output message, and 2) a next state of said finite state machine.

19. (New) The method of claim 12, wherein said receiving and generating are performed by a first device, the method further comprising sending the output message to a second device using the destination data format and the destination communication protocol, both of which are supported by the second device.

20. (New) An apparatus, comprising:
- one or more processors;
 - a memory storing program instructions executable by the one or more processors to:
 - receive an input message; and
 - perform data format conversion and protocol conversion of the input message to generate an output message using a multi-stage, multi-dimensional finite state machine.
21. (New) The apparatus of claim 20, wherein at least a portion of the memory is reprogrammable to update operation of the finite state machine, wherein the input message originates from the apparatus, and wherein the apparatus is configured to convey the output message to a separate apparatus.
22. (New) The apparatus of claim 21, wherein the finite state machine includes one or more reserved inputs, and wherein the reserved inputs are usable, via reprogramming of the memory, to update operation of the finite state machine to accommodate a future communication protocol and/or data format.
23. (New) The apparatus of claim 20, wherein inputs to various stages of the finite state machine include inputs indicative of a communication protocol of the input message, a data format of the input message, a communication protocol of the output message, and a data format of the output message;
- and wherein the inputs to various stage of the finite state machine further include one or more of the following inputs: 1) inputs indicative of a) the type of source application that originated the input message and b) the type of destination application to which the output message is directed; 2) inputs indicative of a) the type of a first device from which the input message originated and b) the type of a second device to which the output message is directed; 3) input indicative of a current connection status between the first and second devices, and 4) input indicative of the current state of the finite state machine.
24. (New) The apparatus of claim 20, further comprising:
- a plurality of sender units configured to transmit the output message;

a message router coupled to receive the output message and configured to determine one of the plurality of sender units to send the output message according to a desired communication protocol for the output message.

25. (New) The apparatus of claim 21, wherein the apparatus is a portable wireless device, and wherein the input message originates from a separate apparatus.

26. (New) An apparatus, comprising:

a logic unit configured to implement a message converter having a first finite state machine, wherein the first finite state machine is multi-stage, multi-dimensional state machine that performs data format and protocol conversion on an input message to produce an output message.

27. (New) The apparatus of claim 26, further comprising a memory storing values used to implement the first finite state machine, wherein the memory is reprogrammable to update the stored values used to implement the first finite state machine, altering operation of the message converter.

28. (New) The apparatus of claim 26, wherein the apparatus is a portable device, wherein the apparatus is configured to use the message converter to communicate with a plurality of devices that do not have a corresponding message converter, and wherein the logic unit is an FPGA or an ASIC.

29. (New) The apparatus of claim 26, wherein inputs to various stages of the first finite state machine include inputs indicative of a first communication protocol of the input message, a first data format of the input message, a second communication protocol of the output message, and a second data format of the output message;

and wherein the inputs to various stage of the first finite state machine further include one or more of the following inputs: 1) inputs indicative of first and second application types for a first application originating the input message and a second application for which the output message is destined, respectively; 2) inputs indicative of a first device type and a second device type for a first device that originated the input message and a second device for which the output message is destined, respectively, 3) input indicative of a current connection status between the first and second devices; and 4) input indicative of a current state of the finite state machine.

30. (New) The apparatus of claim 26, wherein the logic unit is further configured to recognize a communication protocol and a data format associated with the input message, wherein the input message is received from another apparatus.

31. (New) An apparatus, comprising:

an input/output unit configured to perform communication with devices external to the apparatus.

first means for performing protocol and data format translation on an input message to produce an output message.

32. (New) The apparatus of claim 31, wherein the apparatus is a portable wireless device, and wherein the first means includes a reprogrammable memory.

33. (New) The apparatus of claim 31, wherein the first means includes one or more reserved inputs for use in accommodating future communication protocols and/or data formats.

34. (New) One or more computer readable media storing program instructions executable by a computing device to implement a multi-stage, multi-dimensional finite state machine for converting an input message to an output message, including converting a first communication protocol of the input message to a second communication protocol for the output message, and further including converting a first data format of the input message to a second data format of the output message.

35. (New) The computer readable media of claim 34, wherein the media stores program instructions executable by the computing device to receive the input message wirelessly or transmit the output message wirelessly.

36. (New) The computer readable media of claim 34, wherein inputs to various stages of the finite state machine include inputs indicative of the first and second communication protocols and inputs indicative of the first and second data formats;

and wherein the inputs to various stage of the finite state machine further include one or more of the following inputs: 1) inputs indicative of first and second application types for a first application originating the input message and a second application for which the output message is destined, respectively; 2) inputs indicative of a first device type and a second device type for a first device that originated the input message and a second device for which the output message is destined, respectively, 3) input indicative of a current connection status between the first and second devices; and 4) input indicative of a current state of the finite state machine.